

# Knowledge brokering as part of a knowledge system for land and biodiversity

## Introduction

The purpose of this paper is to suggest a model for knowledge sharing in Victoria's catchment management framework, in which knowledge brokers are recognised as having a critical role. It is based on the outcomes of a recent NAP-funded project, managed by the Victorian Catchment Management Council (VCMC).

The project findings suggest that knowledge brokering offers a systematic, purposeful approach to improving knowledge exchange by:

- i) capturing corporate knowledge;
- ii) minimising corporate memory loss;
- iii) reducing duplication and inefficiencies;
- iv) making better use of existing and past investments; and
- v) providing opportunities to address emerging issues.

The proposed model is built around three elements: people, process and technology. *People* refers to an emphasis on human-to-human relationships and engagement; *process* refers to disciplined, efficient procedures that yield accumulated knowledge, continuity and portability; and *technology*, the third element, refers to the use of emerging tools in support of the previous two.

Core stakeholders would be the State Government (through DSE, DPI and the EPA), the 10 Catchment Management Authorities (CMAs), the water authorities and the VCMC. Universities would be invited to participate on a case-by-case basis.

## The knowledge setting

The distillation of knowledge from information and the focusing of knowledge generation into areas of need have been identified as key challenges for effective integrated catchment management (ICM) in Australia. In a recent review, Campbell concluded that whilst much of our effort towards more sustainable use of our land and water resources is leading edge, our knowledge management system is wanting:

*It is too hard for people in any part of the system to find out what is happening and what is being learned elsewhere - or has been learned already. Consequently, decisions may not always be based on the best available information, past mistakes may be being repeated and we are probably not getting the best possible return on investment for public and private funds and effort. (Campbell 2006:7)*

One of the critical issues raised in the VCMC's latest catchment condition report (VCMC 2007) related to knowledge management. Victoria is information-rich; there has been long-term investment in the development of knowledge assets in the forms of reports, unpublished material, spatial and non-spatial datasets, libraries, information systems, models and applications. Added to this is a wealth of tacit knowledge held by individuals and communities. Nevertheless, continued gaps in understanding brought about by lack of information, poor communication and sporadic processing of existing information were identified as fundamental constraints to more effective natural resource management. As before, at the time of the previous catchment condition

report (VCMC 2002), the VCMC suggested that a much more considered, purposeful *system* of knowledge management be developed.

Any such system needs to recognise the knowledge seeking behaviour of the individuals and communities of practice that it seeks to support. Professionals use a variety of strategies to seek out information, but typically tend to seek knowledge face-to-face and from someone who is easily accessible and trusted (Cullen et al. 2001). It follows that in any knowledge *system* for land and biodiversity in Victoria, this 'human' element must be embraced – success in knowledge management will not follow investment in databases and web-based interfaces alone.

The VCMC managed a NAP-funded project, known as the Catchment Knowledge Exchange (or CKE) on behalf of the Catchment Management Framework (CMF). Its core objective was to examine the potential contribution of knowledge brokers to a knowledge system – this was done through the trial, establishment and operation of a soil health knowledge broker.

### **What is a knowledge broker?**

A knowledge broker is an individual or an organisation that engages in knowledge brokering. Knowledge brokering is typically used to refer to processes used by intermediaries (knowledge brokers) in mediating between sources of knowledge and users of knowledge (Campbell 2006). Brokering is ultimately about supporting evidence-based decision-making in the organisation, management and delivery of a service, such as ICM.

Knowledge brokering has been employed in the health sector for many years, particularly in the UK and North America. It is now gaining interest and acceptance in NRM. In addition to work by LWA (2005), a number of organisations such as Co-operative Research Centres and CMAs have appointed knowledge brokers; sometimes these individuals are actively referred to as knowledge brokers – sometimes not.

Brokering can be done in a variety of ways: workshops, expert panels, face-to-face briefings, websites, synthesis reports, networks – all with the purpose of finding the right players to influence research use in decision-making, bringing these players together, creating and helping to sustain relationships among them, and helping them to engage in collaborative problem-solving.

A knowledge system which embraces knowledge brokering, is characterised by a concern for, and acknowledgement of, interactions between *people*, rather than technical support systems alone. This is clearly illustrated in the findings of social network analysis (SNA) conducted at the start of the CKE trial (Figure 1). The purpose of the SNA was to (i) benchmark the current form of the soil health knowledge network relevant for Victoria, and (ii) identify opportunities and weaknesses in communication across that network. Analysis such as this helps identify key nodes of activity, the nature of links across the network, how newcomers might be introduced to the network and how knowledge flows might be improved. The 'spaghetti' linkages illustrate the complexities of the knowledge system and underscore the importance of personal contact.

We already have some experience of knowledge brokering in Victoria. For example, LWA have funded a project to examine information and knowledge systems in western Victoria, dealing with the dairy industry, NRM and catchment issues. The project, undertaken with the Corangamite CMA and Glenelg Hopkins CMA, recommends the establishment of a knowledge brokering role between information service providers (such as research bodies) and regional NRM groups. In northern Victoria, a knowledge

broker is working across three CMAs to enhance knowledge sharing and innovation around issues of biodiversity. Beyond these examples, however, much of what might be described as brokering is rarely identified as such and goes unrecognised. Much of it is informal and little evaluation has been done of its effectiveness.

The VCMC believes that a deliberative network of knowledge brokers would greatly enhance existing knowledge sharing activities in NRM across the State. Knowledge brokering for NRM in Victoria needs to be embedded in a system of knowledge management and have appropriate structures, resources, agreements, recognition and support.

### **A knowledge brokering model for NRM in Victoria**

The proposed model builds on, and enhances (rather than duplicates) existing efforts in knowledge exchange. It will enhance on-ground NRM outcomes through improved knowledge delivery in priority theme areas.

The model recognises:

- (i) principles of adaptive management,
- (ii) a need to achieve explicit behavioural change in ICM through better access to, and use and reuse of, all forms of knowledge;
- (iii) the need for a knowledge system with capacity to efficiently and systematically manage knowledge in the face of generational change, staff mobility, changing technological platforms and institutional change; and
- (iv) the need to address projected skill shortages in skill sets critical to ICM in Victoria.

And, it works on assisting three key relationships:

- (i) Practice to practice
- (ii) Policy to practice; and
- (iii) Research to practice.

The experience of the CKE project has shown the critical importance of having sound business processes underpin a knowledge broker. What is proposed is a formal, mapped network of brokers, encompassing those already in place and embracing new brokers as they arrive. Each broker would work to clear performance measures around an agreed set of deliverables, using agreed processes and procedures. This would not only ensure accountability but also help demonstrate the contribution of the brokering effort.

What develops then is a brokering network built around a small, defined number of themes, each of which will have been identified as a priority by core stakeholders. A knowledge broker is appointed for each theme (or may already be in place). The broker works on behalf of the investors, working with those institutions relevant to the focus of the project. A broker can be sourced from within a stakeholder organisation or from an external source. The choice would be informed by expertise, costs and availability. The main focus of each knowledge broker is to build and nurture a community of people who can access, share, build and apply knowledge.

The knowledge brokers could be supported by a Knowledge Brokering Office (KBO) which provides peer and technological support, and identifies trends and opportunities across themes and regions.

Importantly, neither the knowledge broker, nor the KBO would function as the centre of a hub-and-spoke model; rather, they would function as facilitators of a 'many to many' community. This is the task that databases, clearing houses, web searches, call centres and libraries cannot deliver effectively.

### **Which themes?**

A theme would be tightly defined. It would have a community of practice, a body of knowledge and a defined behavioural change objective that will benefit from a resourced knowledge broker for a period of one to five years. The period allocated to a particular theme is driven by the nature of the objective. As the funded period ends, the aim will be to convert the theme to a self-supporting community of practice. Multiple themes with different starting and finishing dates mean that there is a series of rolling exit points across the brokering network.

There would be a small number of themes at any one time. These would be developed with the core stakeholders and would support explicit knowledge needs identified in the Land and Biodiversity Strategy, Regional Catchment Strategies and other relevant strategies. These might include themes such 'climate change adaptation at the regional scale' and 'design, implementation and management of the Environmental Water Reserve'.

Each broker is resourced to a level that affords the requisite time and resources to meet face-to-face with people within the community of practice, and to meet the business process standards required. Each theme should establish a theme reference group of around six people. This group would offer the broker access to a set of established professional networks, a diversity of view and a solid understanding of the landscape to which the theme applies.

On appointment, each broker and reference group is inducted by the KBO to the processes, standard products and technological platforms of the initiative, and is introduced to other brokers. The brokers work independently and remain under the line management of their host institutions. However, they are supported by the KBO, a common technological platform and a set of processes. The KBO has clear accountabilities in the areas of reporting to investors and stakeholders, process documentation, technology delivery and coordinator support.

### **Conclusion**

Over 15,000 people and over 100 organisations are involved in catchment management in Victoria. Effective NRM knowledge exchange cannot be left to chance.

Knowledge brokering as suggested here is ultimately about increasing evidence-based decision-making in the organisation, management, and delivery of natural resource management across Victoria. And, it is about adding value to existing investments in knowledge generation, synthesis and exchange. The VCMC conceives of a considered, purposeful, people-centred and systematic approach to knowledge management – in which knowledge brokers would have a pivotal role.

## References

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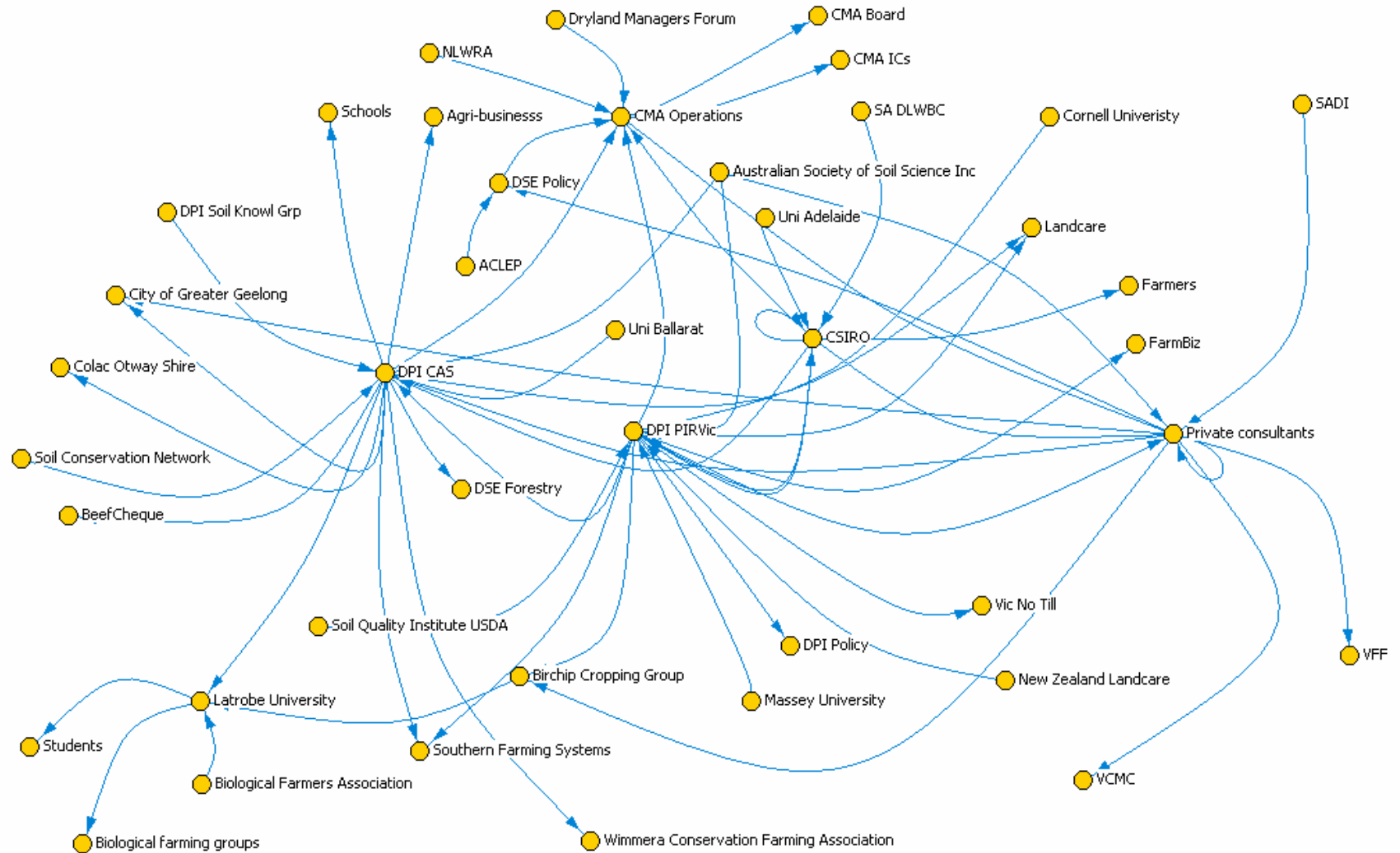
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**Figure 1: Soil health organisational social network map (March, 2006)**

To aid design of the CKE trial, the project team conducted a social network analysis (SNA) to (i) benchmark the current form of the soil health knowledge network relevant for Victoria, and (ii) identify opportunities and weaknesses in communication across that network. Figure 1 is a visual representation of organisations identified by respondents in the SNA; that is, organisations from which soil health knowledge is sought, or to which soil health knowledge is provided. Maps like these help identify key nodes of activity, the nature of links across the network, how newcomers might be introduced to the network and how knowledge flows might be improved. The ‘spaghetti’ linkages of this map, and others generated in the project, illustrate the complexities of the knowledge system and underscore the importance of personal contact.